

REMARKS

Drawings

The examiner objected to the drawings as failing to comply with 37 C.F.R. 1.84(p)(5) in that Figure 5b includes elements 201a and 201b which are not mentioned in the description.

Applicant amended the paragraph beginning on page 12, line 26 of the description provided in the English translation of the originally filed application to provide that elements 201a and 201 are sections of the appurtenant inner wall of the injection mold which press against the connector strips 2a and 2b when the mold material is injected into the mold.

Applicant thanks the examiner for pointing out this oversight.

Specification

The examiner objected to the Abstract on the ground that the Abstract includes improper language such as “the invention describes” and “said”.

Applicant amended the Abstract to remove the language to which the examiner objected, to remove the heading “[l]eadframe-based component housing, leadframe ribbon, surface-mountable electronic component and method of production” and the wording “[f]igure 4b” which erroneously appeared in the Abstract. Applicant also amended the Abstract for greater clarity.

The examiner also objected to the Specification under 37 C.F.R. 1.75(d)(1) and MPEP §608.01(o) as failing to provide an antecedent basis for the subject matter “said recess” recited in claim 12.

Applicant amended claim 12 to make it dependent on claim 4 and to identify the recited recess as the “second recess”. Claim 4 was amended to recite “a second recess for receiving a radiation-emitting and/or radiation-detecting chip.” The recited recess was identifies as the “second recess” to distinguish it from the “first recess” now recited in amended claim 1, as more particularly explained below. Claim 5 was also amended to recite a “second recess.” Applicant notes that the recess for receiving the radiation-emitting and/or radiation detecting chip is described in the Specification at, for example, page 1, lines 12-18, and at page 10, line 25 to page

11, line 2 of the English translation of the Specification. Accordingly, the subject matter pertaining to "said recess" appearing in claim 12 has an antecedent basis in the Specification.

Applicant thus traverses the examiner's objections to the Specification.

Claim Rejections – 35 U.S.C. §102

The examiner rejected claims 1, 2, 6, 7, 13 and 14 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,791,472 to Okikawa et al.

Applicant amended independent claim 1 to clarify, in the preamble of claim 1, that applicant's leadframe-based housing is surface mountable. Applicant further amended independent claim 1 to include the feature that the back wall of the housing base body includes a first recess that extends from the injection aperture. Support for this added feature is found, for example, in FIG. 3B and FIG. 4B. Both figures clearly show that the back wall of applicant's housing base body includes a recess (i.e., the first recess) that extends from the injection aperture on the leadframe. As explained in the originally filed application, by positioning the injection nozzle proximate to the injection aperture, a solid side back wall is formed. This enables the formation of a back wall having a minimal thickness (page 11, lines 11-29). However, as a result of positioning the injection nozzle proximate to the injection aperture and subsequently removing it when the molding process has been completed, a recess (i.e., the first recess) extending from the aperture is consequently formed.

In contrast, Okikawa does not disclose a leadframe base housing having a recess extending from an aperture that is disposed on the leadframe.

Specifically, Okikawa describes a resin encapsulated semiconductor device having a lead frame (Abstract). The lead frame, as shown in FIGS. 1 and 2, and as described in col. 3, line 49, to col. 4, line 30, includes tab suspending leads 4. A semiconductor pellet 9 is attached to a tab 3, and a package enclosing the semiconductor pellet is formed by means of molding using epoxy resin 11. Okikawa further describes:

Then, a package is formed by means of molding using an epoxy resin 11. The size of the package is defined, for example, as shown by the dotted chain 20 in FIG. 3. ...

FIG. 2 shows the semiconductor device as described above in the cross sectional view taken along the plane passing substantially the center of the tab suspending lead 4, which is a so-called dual in line package type semiconductor device. In the semiconductor of the first embodiment, a through hole 5 is formed in the tab 3 and the tab suspending lead 4 as described above. Accordingly, upon mold-forming the package, the resin 11 intrudes also in the through hole 5, by which the movement of the tab suspending lead 4 is completely inhibited. Accordingly, an extremely firm bonding can be attained between the tab suspending lead 4 and the packaging resin 11. (col. 4, lines 10-30)

Thus, to inhibit movement of Okikawa's tab suspending lead 4, the entire volume above and below Okikawa's lead frame has to be filled with the epoxy resin 11. Therefore, not only does Okikawa's not describe a recess extending from the through hole, but in fact to have such a recess would undermine the design of Okikawa's resin encapsulating device since the movement of the suspending tabs would not be properly inhibited. Accordingly, Okikawa does not disclose or suggest at least "wherein the back wall of the housing base body includes a first recess that extends from said injection aperture," as required by applicant's independent claim 1. Independent claim 1 is thus patentable over the cited art.

Claims 2-12 and 15 depend from independent claim 1 and are therefore patentable for at least the same reasons as independent claim 1.

As noted above, the examiner rejected claims 13 and 14 under 35 U.S.C. §102(b) as anticipated by Okikawa. Specifically, the examiner stated:

10. Claims 13 and 14 recite a method and steps therein, however the claims depend on claim 1 which is an apparatus. Therefore, these claims amount to product by process limitations, which will not be given patentable weight. (Office Action, page 4)

Applicant amended claim 13 to present it in independent claim form. Accordingly, applicant further amended claim 13 to provide proper antecedent basis for the features recited therein, and for greater clarity.

Applicant's independent claim 13 recites "applying to said leadframe an injection mold that forms around said leadframe a cavity for creating a housing base body and placing an injection nozzle proximate to said injection aperture."

As noted above, Okikawa describes a resin encapsulated type semiconductor device manufactured by using a leadframe (Abstract). Particularly, as Okikawa explains: "[the] package is formed by means of molding using an epoxy resin 11. The size of the package is defined, for example, as shown by the dotted chain 20 in FIG. 3. ... In the semiconductor of the first embodiment, a through hole 5 is formed in the tab 3 and the tab suspending lead 4 as described above. Accordingly, upon mold-forming the package, the resin 11 intrudes also in the through hole 5, by which the movement of the tab suspending lead 4 is completely inhibited" (col. 4, lines 10-27).

But nowhere does Okikawa describe that in forming the encapsulated package an injection nozzle is applied proximate to the through hole (Okikawa does not even discuss injection apparatus). Indeed, as noted above, were an injection nozzle or apparatus placed proximate to the through hole, the injection nozzle or apparatus would occupy part of the interior space of the encapsulating package, and thus the molding material would fail to evenly flank the two sides of the tab suspending lead 4. As a result, the movement of the tab might not be properly inhibited as Okikawa requires. Thus, Okikawa does not disclose or suggest at least "applying to said leadframe an injection mold that forms around said leadframe a cavity for creating a housing base body and placing an injection nozzle proximate to said injection aperture," as required by applicant's independent claim 13. Accordingly, independent claim 13 is patentable over the cited art.

Claim 14 depends from independent claim 13 and is therefore patentable for at least the same reasons as independent claim 13.

Claim Rejections – 35 U.S.C. §103

The examiner rejected claims 1-2, 4-6 and 7-15 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent publication No. 2004/0262717 to Arndt et al. in view of Japanese

Patent No. JP 11-340403 to Hiroshi. Additionally, the examiner rejected claim 3 under 35 U.S.C. §103(a) as being unpatentable over Arndt in view of Hiroshi and further in view of U.S. Patent Publication No. 2004/0251523 to Takiar.

Applicant's application is a national-stage entry from PCT application No. PCT/DE2003/002953 having an international filing date of September 5, 2003. Applicant's corresponding PCT application claims priority from German application No. 102 43 247.3 filed September 17, 2002. Copies of the various priority documents, and all other supporting documents, were filed on March 15, 2005, and are available on the PAIR system maintained by the Patent Office.

On the other hand, the Arndt reference on which the examiner relies in support of the above rejections is an national stage entry from PCT application No. PCT/DE2002/02866 having an international filing date of August 2, 2002. The Arndt PCT application was published on March 6, 2003. A copy of the Arndt PCT application is attached herein as Attachment A for the examiner's reference. As the examiner will note, the Arndt PCT application was published in German.

As examiner knows, and as explained in MPEP 706.02(f)(1):

Example 5 : References based on the national stage (35 U.S.C. 371) of an International Application filed on or after November 29, 2000 and which was not published in English under PCT Article 21(2) .

All references, whether the WIPO publication, the U.S. patent application publication or the U.S. patent, of an international application (IA) that was filed on or after November 29, 2000 but was not published in English under PCT Article 21(2) have no 35 U.S.C. 102 (e) prior art date at all. According to 35 U.S.C. 102 (e), no benefit of the international filing date (nor any U.S. filing dates prior to the IA) is given for 35 U.S.C. 102 (e) prior art purposes if the IA was published under PCT Article 21(2) in a language other than English, regardless of whether the international application entered the national stage. Such references may be applied under 35 U.S.C. 102 (a) or (b) as of their publication dates, but never under 35 U.S.C. 102 (e). (emphasis added)

Thus, the Arndt PCT application can only be relied upon by the examiner as a 102(a) or 102(b) reference.

Accordingly, because the Arndt PCT application's publication date of March 6, 2003, is subsequent to applicant's priority date of September 17, 2002 for the above-identified application, and the present claims are supported by the German priority document (a translated copy of which is provided herewith as Attachment B for the examiner's convenience), applicant respectfully submits that neither the U.S. published Arndt reference, nor the corresponding Arndt PCT applications are proper references, under either 102(a) or 102(b), to cite against the above-identified application.

Applicant therefore requests that the examiner's rejections based on 35 U.S.C. §103(a) be withdrawn. Applicant thus traverses the examiner's rejections based on 35 U.S.C. §103(a).

Summary

It is believed that all the rejections and/or objections raised by the examiner have been addressed.

In view of the foregoing, applicant respectfully submits that the application is in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

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Enclosed is a \$120 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing 12406-110US1.

Respectfully submitted,

Date: March 31, 2006

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